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ABSTRACT

The course covers the basic fundamentals of architectural drafting and is not intended to delve into the more advanced phases of architecture. The student is presented with standards and procedures, and will become proficient in layout of floor plans, electrical plans, roof construction, foundation plans, typical wall construction, plot plans, and the elevations in residential house construction. Prior to entry into this course, the vocational student will display mastery of the skills indicated in Working, Welding and Structural Drafting--9255.03. Totaling 135 clock hours, the course consists of seven instructional blocks: (1) introduction to architecture, (2) preliminary planning, (3) working drawings, (4) title blocks, (5) construction method, (6) buildings, and (7) Quinmester posttest. A bibliography and sample posttest conclude the curriculum guide. (Author/MW)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

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Course Outline
DRAFTING 2 - 9255
(Architectural Drafting)
Department 45, 48 - Quin 9255.04

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DADE COUNTY PUBLIC SCHOOLS
DIVISION OF INSTRUCTION • 1973

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D A D E C O U N T Y P U B L I C S C H O O L S

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Course Outline

DRAFTING 2 - 9255
(Architectural Drafting)

Department 45, 48 - Quin 9255.04

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Dade County Public Schools
Miami, Florida 33132

January, 1973

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Course Description

9255	45, 48	9255.04	Architectural Drafting
State Category Number	County Dept. Number	County Course Number	Course Title

This is a course in the standards and procedures in architectural drafting. The student will become proficient in layout of floor plans, electrical plans, roof construction, foundation plans, typical wall construction, plot plans and the elevations in residential house construction.

Indicators of Success: Prior to entry into this course, the vocational student will display mastery of the skills indicated in Working, Welding and Structural Drafting - 9255.03.

Clock Hours : 135

PREFACE

The following quinmester course outline is presented as an introduction to architectural drafting. It is intended that this course will cover the basic fundamentals of this field of drafting and is not intended to delve into the more advanced phases of architecture. The student is introduced to various types of tools and equipment and is provided with an opportunity for instruction and laboratory experiences.

This course is taught in a two-hour block for 90 hours or a three-hour block for 135 hours. In each instance, the course consists of seven instructional blocks. However, the three hour session permits the student to cover each block in more detail and also provides additional opportunity to practice and increase his or her skills. The course is concluded by a post-test sample.

An adjunct to the listed instructional methods is provided through the instructor's utilization of audiovisual equipment and materials.

The bibliography lists the basic reference, workbooks and supplementary reference used by the teacher in presenting the material. These books are available to the student through the instructor.

This outline was developed through the cooperative efforts of the instructional and supervisory personnel, the Quinmester Advisory Committee and the Vocational Curriculum Materials Service, and has been approved by the Dade County Vocational Curriculum Committee.

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I. INTRODUCTION TO ARCHITECTURE (6 Hours)	
Brief History	1
Opportunities	1
II. PRELIMINARY PLANNING (15 Hours)	
Presentation Sketches	1
Display Drawings	1
III. WORKING DRAWINGS (76 Hours)	
Scale	1
Lettering	1
Dimensioning	1
Notes	1
Building Symbols and Conventions	1
Window and Door Schedule	1
Material Schedule	2
Plot Plan	2
Definitions of Common Building Terms	2
Foundation Plan	2
Floor Plan	2
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Detail Drawings	3
Building Specifications	3
Use of Handbooks	3
IV. TITLE BLOCKS (6 Hours)	
Building Identification	3
Owner Identification	3
Architect Identification	3
V. CONSTRUCTION METHOD (15 Hours)	
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VII. QUINMESTER POST-TEST (2 Hours)

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GOALS

The student must be able to demonstrate:

1. The ability to develop and direct his or her activities along lines parallel to present day drafting practice.

2. Skills in the selection and handling of tools and equipment through organized practice sessions in the related field of fasteners of all types.

3. The skills needed to perform as a draftsman with assigned tasks that may require pictorial drafting. The student will become knowledgeable with drawings that require illustration in the industry.

4. The ability to advance his knowledge and skills in drafting to meet the requirements of the electrical and electronic industry.

5. The desire for advancemenet in his chosen vocation by introducing and keeping before him achievements of leading machine designers, engineers and draftsmen, especially in the piping field.

6. The use of tools and equipment to perform a task in a predetermined length of time and to the satisfaction of a drawing checker.

SPECIFIC BLOCK OBJECTIVES

BLOCK I - INTRODUCTION TO ARCHITECTURE

The student must be able to:

1. Discuss the history of architecture briefly and know how it effects our lives.
2. Exhibit the ability to read the "Dodge Reports" and the daily papers to determine what opportunities are available to students in our field.

BLOCK II - PRELIMINARY PLANNING

The student must be able to:

1. Draw presentation sketches that depict influence on living, social conditions, creative arts, trends and periods of design.
2. Prepare display drawings that show the architectural elevations of the building involved.

BLOCK III - WORKING DRAWINGS

The student must be able to:

1. Demonstrate the ability to use the proper scale for the proper drawings.
2. Prepare the drawings with the proper lettering that is used in the field of architecture.
3. Prepare drawings with the proper type of dimensions used in the architectural field.
4. List notes needed to complete construction drawings.
5. Draw construction drawings using building symbols and conventions that are needed to complete the information used by the field or shop.
6. Prepare window, door and material schedules that call out information to complete construction.
7. Prepare plot plans that would be acceptable in the industry today.
8. List and use the proper definitions of the building trade.
9. Draw foundation plans that show construction details of footings, piers and pilings.
10. Exhibit the ability to make drawings that show the floor plan and all the associated information that is involved with this type of architectural drawing.
11. Draw elevations showing the necessary information that is required by the industry to complete this phase of the architectural plan.
12. Prepare necessary sectional views that are necessary in the construction process to complete the building.
13. Demonstrate an understanding of detail drawings, building specifications and the use of handbooks that are used in the building trade.

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BLOCK IV - TITLE BLOCKS

The student must be able to:

1. Prepare the portion of the title block that pertains to the building identification.
2. State the owner's name, address and record legal description of the property that he is drawing.
3. List all the information needed to complete the architect's identification as his name, office address, commission number, all signatures and revisions with dates drawn and checked.

BLOCK V - CONSTRUCTION METHOD

The student must be able to

1. Demonstrate an understanding of wood framing exterior and be able to use this method of construction in this field of construction.
2. Exhibit the ability to draw the construction information that it takes to construct a building that calls for a masonry wall.
3. Explain the construction methods necessary where wood framing interior is required in buildings.
4. Demonstrate the ability to draw drawings that require structural framing.

BLOCK VI - BUILDINGS

The student must be able to:

1. Draw a complete set of plans for a one, two or three bedroom residence.
2. Exhibit the ability to read the construction prints for commercial buildings.

BLOCK VII - QUINMESTER POST-TEST

The student must be able to:

1. Satisfactorily complete the quinmester post-test.

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Course Outline

DRAFTING 2 - 9255
(Architectural Drafting)

Department 45, 48 - Ouin 9255.04

I. INTRODUCTION TO ARCHITECTURE

A. Brief History
   1. Reference
   2. Periods

B. Opportunities
   1. "Dodge Reports"
   2. Daily papers

II. PRELIMINARY PLANNING

A. Presentation Sketches
   1. Needs for shelter
   2. Influence on living
   3. Social conditions
   4. Creative arts
   5. Trends
   6. Periods of design
   7. Structural elements

B. Display Drawings

III. WORKING DRAWINGS

A. Scale

B. Lettering

C. Dimensioning

D. Notes

E. Building Symbols and Conventions
   1. Plumbing
   2. Electrical
   3. Heating and cooling
   4. Material

F. Window and Door Schedule
   1. Types windows
      a. Awning
      b. Double hung
      c. Jalousie
      d. Industrial
   2. Doors
      a. Exterior
      b. Interior

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G. Material Schedule
   1. Information necessary
      a. Floor
      b. Ceiling
      c. Walls
   2. Finishes
      a. Plaster
      b. Paneling
      c. Materials

H. Plot Plan
   1. Site
      a. Over-all
      b. Directional indication
      c. Scale
      d. Elevations
      e. Zoning
      f. Legal description
      g. Landscaping
      h. Walks and drives
   2. Use of plot plan

I. Definitions of Common Building Terms

J. Foundation Plan
   1. Footings
      a. Soil conditions
      b. Weight distribution
      c. Types
      d. Basic requirements
      e. Sizes
      f. Reinforcement requirements
   2. Pier
      a. size
      b. Spacing
      c. Reinforcement size and location
   3. Piling
      a. Purpose
      b. Types
      c. Plan drawing
      d. Use of grade beams
      e. Reinforcing required

K. Floor Plan
   1. Electrical
      a. Symbols
      b. Code
      c. Circuits
      d. Panel
      e. Specifications
   2. Dimensioning
   3. Conventions
   4. Direction of north arrow
   5. Labeling rooms
   6. Door and window identification
   7. Miscellaneous information

III - WORKING DRAWINGS (Contd.)

L. Elevations
  1. Direction title
    a. North and south
    b. East and west
  2. Material shown
    a. Symbol
    b. Label
  3. Dimensioning
    a. Windows
    b. Grade
    c. Plate line
    d. Finished floor
  4. Tie beam
  5. Footing
  6. Roof pitch

M. Sectional Views
  1. Typical wall
    a. Symbols
    b. Call out material
    c. Sizes
  2. Finished floor
    a. Various elevations
    b. Material
      (1) Steel
      (2) Size

N. Detail Drawings

O. Building Specifications

P. Use of Handbooks

IV. TITLE BLOCKS

A. Building Identification
  1. Type of drawing
  2. Scale

B. Owner Identification
  1. Name
  2. Address
  3. Recorded legal description

C. Architect Identification
  1. Name of firm
  2. Address of office
  3. Commission number or seal
  4. Signatures or initials
    a. Drawn by
    b. Checked by
    c. Approved by

5. AIA filing system
6. Revision and dates
7. Date

V. CONSTRUCTION METHOD

A. Wood Framing Exterior
1. Balloon
2. Western
3. Braced
4. Roof
a. Layout
b. Pitch
c. Member size and location
d. Nomenclature
e. Overhang

B. Masonry Walls - Exterior
1. Concrete block
a. Types
b. Methods
c. Construction
2. Structural tile
a. Types
b. Standard sizes
3. Brick
a. Types
b. Standard sizes
4. Veneer
a. Types
b. Backing material

C. Wood Framing Interior
1. Partitions
a. Planning partitions
b. Identification
c. Plate construction
d. Sill construction
2. Door and window openings
a. Stud spacing
b. Plate construction
c. Modular coordinates
d. Headers
(1) Use
(2) Purpose
3. Floor and stair openings
a. Trimmer installation
b. Header details
c. Cantilever methods
d. Types of stairs
e. Riser tread formula

D. Structural Framing
1. Floors

a. Bar joist
b. Precast construction
c. Layout
(1) Rough
(2) Finished
d. Materials and finishes

2. Columns
a. Steel
b. Pipe sizes
c. Reinforced concrete sizes
d. Wood calculation

3. Roofs
a. Bar joist
b. Precast construction
c. Pan construction
d. Truss type

4. Fireplace
a. Required foundation
b. Framing techniques
c. Types
d. Flue construction
e. Finished material
f. Threat and fireplace opening formula

VI. BUILDINGS

A. Residences

1. One, two and three bedroom
a. Planning
b. Methods of selection
(1) Windows
(2) Doors
c. Electrical
d. Roof design
e. General specifications
f. Procedure for determining
(1) Elevations
(2) Heights
(3) Grades
(4) Site locations

2. Split level
a. Wall section
b. Code-building
c. Foundation requirements

3. Two-story

4. Two-story duplex
a. Commercial code
b. Foundation requirements

B. Commercial Construction

1. Motel
2. Store
3. Restaurant
4. Manufacturing plants

5. Warehouse
6. Clubs
7. Churches
8. Office buildings

VII. QUINMESTER POST-TEST

BIBLIOGRAPHY
(Architectural Drafting)

Basic References:

1. French, Thomas E. And Svensen, Carl L. Mechanical Drawing. 7th ed. New York: McGraw-Hill Book Company, Inc., 1966. Pp. 570.

2. Helper, Donald E. and Wallach, Paul I. Architecture Drafting and Design. New York: McGraw-Hill Book Company, Inc., 1965. Pp. 472.

Supplementary References:

3. French, Thomas E. and Vierck, Charles J. Engineering Drawing. 10th ed. New York: McGraw-Hill Book Company, Inc., 1966. Pp. 850.

4. Fuller, Don. Functional Drafting for Today. Boston: Industrial Education Institute, Farnsworth Publishing, Inc., 1966. n.p.

APPENDIX

QUINMESTER POST-TEST SAMPLE

Quinmester Post-Test

Name _____ Date _____ Score _____

True-False Test Items

Each of the following statements is either true of false. If the statement is true, draw a circle around the letter T following it; if the statement is false, draw a circle around the F. If a statement is false in part it is entirely false.

1. New developments in architecture and engineering and new building materials have brought about more changes in architectural design in the last 30 years than occurred during the entire preceding history of architecture. T F

2. It is impossible to trace the history of architecture through social conditions that exist. T F

3. Throughout this historical development, the architect has relied heavily upon the advancements of science and mathematics. T F

4. The ancient Greeks used post and lintel construction structures. T F

5. The Romans began a new trend in the design of wall openings when they developed and popularized the use of the arch. T F

Performance Test

Each student will perform the assigned task at his own work station. He will have enough equipment to complete the task. There will be no talking and the student can leave his work station only to use the reference area. The assigned model or sketch will be placed on the student's drawing board.

Operation A - The student will perform the operation of sketching the preliminary planning diagram with the ideas of:

1. Needs for shelter
2. Influence on living
3. Social conditions
4. Creative arts
5. Trends
6. Periods of design
7. Structural elements

Operation B - The student will perform the operation of sketching the display drawing in the same manner as in Operation A.

Completion Test Items

Fill in the blank or blanks with the word or words that make the statement correct.

1. The scale used for residential floor plan drawings is _____.

2. The dimensions used in architectural drawings are _____ type as compared to decimal type in machine or electronic drafting.

3. Plumbing, electrical or heating and cooling _____ are used in architectural drafting to standardize the trade.

4. Window, door and material _____ are used in architectural drafting to transmit information to the field or purchasing in order to complete the construction procedure.

5. Many types of information are portrayed on a plot plan but probably the most important part is the _____ description.

6. Footings, pier and piling information is usually found on the _____ plan.

7. Electrical symbols and information are usually found on the _____ plan but may have a plan of it's own if the drawings are too complicated or room is a factor.

8. _____ are not used too much by the field for construction workers but the owner can use this drawing to see how his home will look.

9. Identification of the building, owner and architect are found in the _____.

10. Typical wall is shown in the form of a _____.

Essay Items

Describe the following items, neatly and accurately, in the space provided:

1. Building Identification -

2. Owner Identification -

3. Architect Identification -

4. Signature or Initials -

5. Revision and Dates -

Multiple Choice Test Items

One of the words or phrases following each statement is significant to that statement. Place the correct answer in the space provided.

___ 1. There are several types of wood framing but one listed below is <u>not</u>:

a. Balloon
b. Western
c. Braced
d. Stud
e. Roof

___ 2. Masonry wall exterior construction is usually done with concrete block and sometimes the wall has a veneer. Listed below is one very popular type of veneer:

a. Spanish tile
b. Asphalt
c. Brick
d. Wall board
e. Rock lath

___ 3. Woods that are connected with wood framing interior are listed below but one of them is <u>not</u> related to this form of construction:

a. Sill construction
b. Partitions
c. Header details
d. Bar joist
e. Riser-tread formula

___ 4. Structural framing is very popular in Florida due to our salt conditions. Some of the terms are listed below - one is <u>not</u> related.

a. Column
b. Pipe size
c. Precast construction
d. Conduit
e. Reinforcing

___ 5. Listed below are several terms used when building a fireplace or parts of a fireplace. One term is <u>not</u> connected with this form of construction:

a. Flue
b. Chimney
c. Threat
d. Hearth
e. Lintel

Matching Test Items

The two columns below contain related words and phrases pertaining to types of buildings and building construction. Select the word or phrase in the right-hand column that is most closely related to the descriptive word or phrase in the left-hand column and place the answers in the spaces provided.

1.	Residence (1, 2, or 3 bedroom)	a.	Attractive selling quality	( )
2.	Split level	b.	Mind appeal	( )
3.	Two story	c.	Cost not looks	( )
4.	Duplex	d.	Health code	( )
5.	Motel	e.	Machine layout	( )
6.	Restaurant	f.	Type of business	( )
7.	Warehouse	g.	Sectional details	( )
8.	Church	h.	Sound barrier wall	( )
9.	Office building	i.	Wife's social obligations	( )
10.	Plant (manufacturing)	j.	Special residential footer	( )

ANSWER KEY TO QUINMESTER POST-TEST

True-False Test Items

1. T
2. F
3. T
4. T
5. T

Performance Test

Check the sketch and drawing as the regular work is checked using the normal check list.

Suggested check list rates accuracy, lettering, dimensioning, neatness, instruction and line work.

Check for completeness.

Completion Test Items

1. 1/4" = 1'0"
2. Fractional
3. Symbols
4. Schedules
5. Legal
6. Foundation
7. Floor
8. Elevation
9. Title block
10. Section

Essay Items

Check the five points listed for facts and content. Quality of information is important.

Multiple Choice Test Items

1. d
2. c
3. d
4. d
5. e

Matching Test Items

a. 5
b. 8
c. 7
d. 6
e. 10
f. 9
g. 2
h. 4
i. 1
j. 3

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